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at once into water." The first rupture in this case is an explosive one, which scatters some of the pollen, and cannot be due to the cause assigned by SCHNEIDER.—C. R. B.

**Mesostrobus**, a new genus of Carboniferous lycopods.—WATSON<sup>29</sup> has described the strobilus of a new lycopod from the Lower Coal Measures of Lancashire. It resembles Lepidostrobus, but the sporangium is only attached to the distal half of the horizontal portion of the sporophyll, and the somewhat larger ligule is set in a deep pit. A characteristic point of view is illustrated by the following quotation: "Lepidostrobus would be derived from a cone having sporophylls of this type" (*Bothrodendron mundum*, etc.) "on the adoption of an arboreal habit by the heterosporous lycopods, because radial elongation of the sporangium is the most economical way of increasing the number of spores produced, a necessity for a large tree. If this elongation takes place in the part of the sporophyll between the axis and the insertion of the sporangium, we arrive at a condition much like that of Spencerites, and from that condition we can pass through Mesostrobus to Lepidostrobus."—J. M. C.

**Heating of leaves.**—It has been known that the evolution of heat may be demonstrated in living plants by using seedlings and flowers, but leaves have not been considered favorable material for this experiment. MOLISCH has now shown<sup>30</sup> that in many cases 3–5<sup>kg</sup> of leaves, placed in a basket and packed in "excelsior," show a rise in temperature amounting to 20–45° C. within 12–24 hours. The leaves are usually killed thereby, and after a fall a second rise of temperature begins, which may attain a maximum somewhat higher or lower than the first. The first evolution of heat he ascribes to the respiration of the leaves, while the second is due to the rapid development of microorganisms. The experiment is simple and worthy a place in the laboratory practice.—C. R. B.

**Osmotic pressure and permeability.**—TRÖNDLE records another example of what has been observed by others, namely, change in the permeability of the protoplast according to the conditions of lighting and temperature. His preliminary report<sup>31</sup> concerns the leaves of *Tilia cordata* and *Buxus sempervirens rotundifolia*; in the former both palisade and spongy parenchyma, in the latter only the palisade being investigated. He reports also the high values of 20–26A for the osmotic pressure as determined by plasmolysis. It is to be remembered that plasmolytic studies, such as these, in many of which NaCl was used, are of

<sup>29</sup> WATSON, D. M. S., On *Mesostrobus*, a new genus of lycopodiaceous cones from the Lower Coal Measures, with a note on the systematic position of *Spencerites*. *Annals of Botany* 23:379–398. *pl. 27.* 1909.

<sup>30</sup> MOLISCH, H., Ueber hochgradige Selbsterwärmung lebender Laubblätter. *Bot. Zeit.* 66 :211–233. 1908.

<sup>31</sup> TRÖNDLE, A., Permeabilitätsänderung und osmotischer Druck in den assimiliierender Zellen des Laubblättes. *Ber. Deutsch. Bot. Gesells.* 27:71–78. 1909.